"A Study to Assess Co-Relation between Smart Phone Addiction and Depression among Adolescents in Selected Schools of Dehradun, Uttarakhand."

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Abstract:
Background:Thefundamental cause of smart phone addiction is due to stress arising from family and school. Smart phone can cause numerous problems including depression and anxiety which all leads to severe mental problems. The aim of study was to assess co-relation between smart phone addiction, depression and association between selected demographic variables among adolescents in selected schools of Dehradun.
Methodology: The quantitative research approach and non-experimental descriptive research design was used for the study. A total 150 adolescents from selected schools of Dehradun, Uttarakhand were selected through non-probability convenience sampling technique. The data was collected through standardized tool smart phone addiction scale (SPA) and Beck's depression inventory II (BDI –II) .The tool was developed in three parts , the first part deal with the 9 demographic variables, the part two consist of 33 items with a six- point Likert scale and part three consists 21 items self – administered survey is scored on a scale of 0-3 in a list of 4 statement arranged in increasing severity about particular symptoms of depression the criterion for sample selection was 13-18 year of age.
Results :Findings of the study revealed that majority 59.33% adolescents have moderately addicted to smartphone, 34.7% were mildly addicted and 6% were severely addicted to smart phone and 50.7% adolescents were having moderate depression, 27.3% mild depression, 11.3% severe depression and 10.7% adolescents were minimal depression. Co–relation was +0.634 which indicate there is a positive moderate relation between smartphone addiction and depression of adolescents. Chi- square revealed association among smart phone addiction and depression with selected demographic variables.
Conclusion These findings support the importance of establishing intervention strategies designed to decrease depression of students to help them prevent Smart phone addiction.
Keywords: smart phone addiction, depression

I.   Introduction

Smart phone addiction is a psychological dependence on the internet and is characterized by an increasing investment of resources on internet–related activities, unpleasant feelings (example Anxiety, depression, emptiness) when offline, an increasing tolerance to the effects of being online, denial of the problematic behaviors (Jonathan J.Kandell,2015) Smart phones now become an inevitable part of our daily life. The positive fact is that smart phone help people to reach out and for maintaining IPR. The negative impact of it is that, the daily usage of smart phone by the users, have proven dangerous effects to their physical, psychological and social aspects.One of the most common sights we see these days, is that of people with their mobile phones next to their ears. The mobile phone industry has been one of the fastest growing industries in modern history. Today, India has million mobile phone users, and mobile phones account for 88% of all telecommunication users. The rural sector accounts for more than 25% of all wireless phone users and this proportion is bound to grow as affordability of mobile phones continues to increase. In the years ahead, an ever-increasing number exposed for long periods of time to radiation from mobile phones.In India, Uttarakhand state is one of the fastest growing collocations. Dehradun is a city holds few of the most prestigious and famouseducational institutes of the country. City attracts huge number of students every year from all over India. Students come from different –different places away from their family and home. So to be connected with their friends and family as a mean of communication. It is cheap, easy to avail and access than any other mean.[7]With this, several necessary or unnecessary purposes rise to use of smart phone. There will be plenty number of people under mild, moderate or severe smart phone addiction.The regular assessments of the current status of smart phone addiction can help to find out the key to handle the problem before its gets out of control.

The fundamental cause of teenagers' addiction to smart phone is due to stress arising from family and school.When students are experiencing physical and mental stress from outer forces, they tend to look for a way to relieve stress they turn to internet surfing and games as means of escape in order to overcome problems they encounter from their social group of friends and overwhelming school work. In the past, students used computers to cope with the latter obstacles. However, the transportability, extendibility, and instantaneity that comes from smart phones puts students at a higher risk of addiction and has become a controversial issue in our society today.[11] Smart phone addiction has caused serious and harmful effects in teenagers' daily lives and it has become difficult to eliminate the root to this problem. The present study is an attempt to assess co-relation between smart phone addiction and depression among adolescents .The development of information pamphlet is also added as a part of study to create awareness and to serve as a preventive tool for safe use of mobile phones against smart phone addiction among adolescents.

II. Objectives

1. To assess the level of smart phone addiction and depression among adolescents.
2. To find out the co-relation between level of smart phone addiction and depression among adolescents.
3. To find out the association between level of smart phone addiction and depression among selected demographic variables of the study.

III. Review of literature

REVIEW OF LITERATURE RELATED TO PREVALENCE OF SMART PHONE ADDICTION AMONG ADOLESCENTS **Anna Tomova (2016)** A cross sectional study was conducted to evaluate mobile phone dependence among 200 students of selected schools of Bangalore , age group of 13 to 18 by using pre-designed questionnaire method. Systemic random sampling was used to select samples. The study results showed that 18.5% were monophobias or mobile phone dependent students. 73% of students keeps their mobile phones for 24hrs a day. Forty four % students spend Rs 250-500 per month for their mobile recharge. The study concluded that mobile phone dependence is an emerging problem of modern era.**JanelRaloff (2016**) A comparative survey was investigated between two countries among 50 each pre- university students regarding the mobile phone usage pattern by using a structured questionnaire technique. The study results showed that out of the 90% of students in the above mentioned first country who owns the cell phone,40% use while driving .But in the other country out of 88%,80% use mobile while driving. The study concluded that most of the adolescents were having lack of knowledge regarding the impacts of cell phone. REVIEW OF LITERATURE RELATED TO SMART PHONE ADDICTION AND DEPRESSION **JanelRaloff (2017)** conducted the study have begun linking heavy cell phone use over prolonged periods with an increased risk of anxiety, depression and sleep disturbances. He joined with Olga Naidenko, a senior scientist with the environmental working group, a research / advocacy organization based in Washington, D.C., led a term that just completed a 10 month analysis of 200 peer reviewed studies on cell phone safety. They suggests the potential for serious safety issues.**Nicfleming (2016)** A prospective cohort study was conducted to investigate theassociation between psycho- social aspect of mobile phone use and mental health symptoms among 10,000 men and women each in the age group of 20-24 by using a questionnaire method. The results showed that 22%of the men and 24% of the women having high use (11 or more calls or SMS per day), 23% of the men and 34% of the women indicated sleep disturbances. The study concluded that there is an association between psycho-social aspect of mobile phone use and mental health symptoms.

In this study, non –experimental quantitative approach with descriptive co-relational survey design was adopted. The study was conducted in selected school of Dehradun ,150 adolescents who fulfilled the inclusion criteria were included in this study using non – probability convenient sampling approach.

INCLUSIVE CRITERIA: The inclusive criteria of sample include:
* The adolescents with age range of 13 to 18 year old.
* The adolescents who are willing to participate in this study.
* The adolescents who are using smart phone.
* The adolescents who are available during the period of data collection.

EXCLUSIVE CRITERIA: The exclusive criteria of sample include:
* The adolescents with chronic physical problem or apparent disability.
* The adolescents under treatment for any psychiatric illness during the past year.

IV. Data Collection Tool:

The tool consisted of three parts, part 1 demographic variables, part 2 smart phone addiction scale, part 3 Beck's depression inventory II.To ensure content validity of the tool it was submitted to seven experts. The tool was administered to 15 students from the selected school. Cronbach's alpha is used to test the reliability of the items. The reliability coefficient of smart phone addiction scale test was r= 0.967 and reliability coefficient of beck's depression inventory was r=0.92, which shows that tool was reliable. The pilot study conducted with 15 adolescents established the feasibility of the proposed study.

Main study:the main study was conducted from Dec 2018 to Sep 2019. The data analysis was done by using descriptive n inferential statistics.

V. Results

Table-1 shows the distribution of respondent according to demographic perform .The data revealed that 74 (49.4%) were in the age group of 15-16 years followed by 44 (29.3%) were in the age group of 13-14 years and 32 (21.3%) were in the age group of 17-18, the distribution of respondent according to gender. The data revealed that 99 (66%) adolescents were female and 51 (34%) were male, among the adolescents 92 (61.3%) of them were studying class 10th, 41 (27.4%) were class 12th, 11 (7.3%) adolescents studying in class 11th and 6 (4%) were studying class 9th, 76 (50.7%) respondent monthly family income is Rs. 5,000/- to Rs.10,000/-, 28 (18.7%) respondent family income is more than Rs. 30,000/-, 26 (17.3%) adolescents family income is Rs. 11,000/- to Rs.20,000/- and 20 (13.3%) adolescents family income is Rs. 21,000/- to Rs.30,000/. The majority 131 (87.3%) respondents were living in urban area and 19 (12.7%) were in rural area. 148 (98.7%) adolescents have their own smart phone and 2 (1.3%) were not having smart phone, the purpose of using smartphone, 66 (44%) adolescents were use smartphone for education purpose, 60 (40%) were use for education, internet surfing, shopping and social network communication, 22 (14.7%) were use for internet surfing and 2 (1.3%) were use only for social network communication. The duration of smartphone used by the adolescents shows that 139 (92.7%) respondents were use smartphone for 4 hours and 11 (7.3%) were use 8 hours in a day no one will use 12 hour or more, the most common place of using smartphone by adolescents, in that 143 (95.3%) respondent told that they use smartphone more in home, 4 (2.7%) adolescents told no any particular place and 3 (2%) were use phone while travelling.

Section: 1 table no. 1 description of socio demographic variables of the study

N=150

S.NO.	DEMOGRAPHIC VARIABLES	FREQUENCY	PERCENTAGE
1.	**Age(in years)**		
	13-14 years	44	29.3%
	15-16years	74	49.4%
	17-18 years	32	21.3%
2.	**Gender**		
	Male	51	34%
	Female	99	66%
3.	**Education**		
	Class 9th	6	4%
	Class 10th	92	61.3%
	Class 11th	11	7.3%
	Class 12th	41	27.4%
4.	**Income of family per month**		
	5,000 to 10,000	76	50.7%
	10,001 to 20,000	26	17.3%
	20,001 to 30,000	20	13.3%
	More than 30,000	28	18.7%
5.	**Habitat**		
	Rural area	19	12.7%
	Urban area	131	87.3%
6.	**Do you have own smart phone**		
	Yes	148	98.7%
	No	2	1.3%

7.	**Purpose of using smart phone**		
	Education	66	44%
	Internet surfing	22	14.7%
	Social network communication	2	1.3%
	All of the above	60	40%
8.	**Duration of smart phone use per day**		
	4hour	139	92.7%
	8hour to 12 hour	11	7.3%
9.	**Most common place of using smart phone**		
	Home	143	95.3%
	Travelling	3	2%
	other (specify)	4	2.7%

Table 2 Finding related to level of smart phone addiction and depression among adolescents
(N=150)

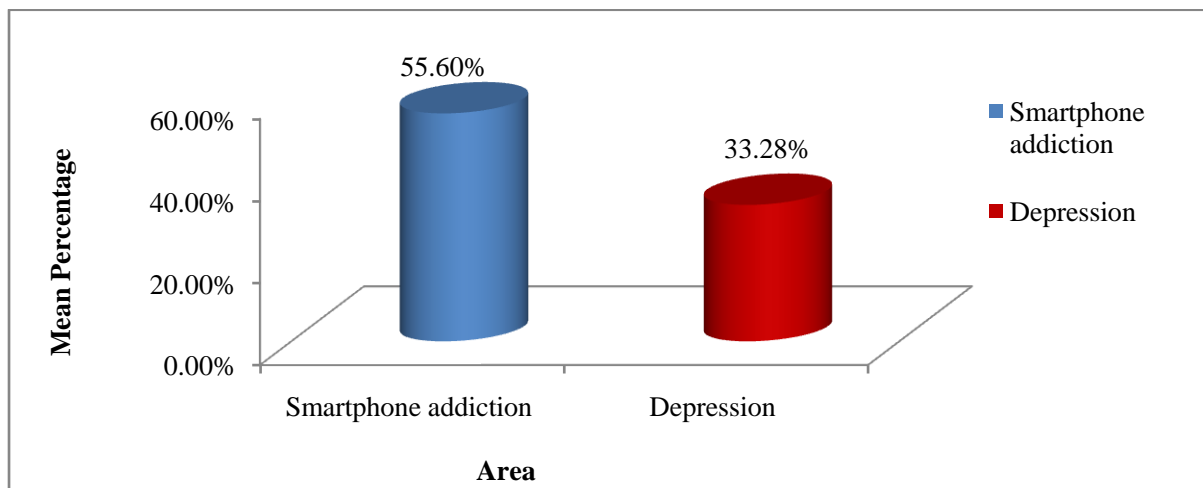| Area	Maximum score	Mean ± SD	Mean %
Smartphone addiction	198	110.09 ± 23.00	55.60%
Depression	63	20.97 ± 6.23	33.28%

Figure:1 Mean % of smart phone addiction and depression among adolescents

Table:2 level of Smart phone addiction among adolescents(N=150)

S. No	Smartphone Addiction	Score	F	
			F	**%**
1.	Mild addiction	50 to 100	52	34.7%
2.	Moderate addiction	101 to 149	89	59.33%
3.	Severe addiction	150 to 198	9	6%
Total			**150**	**100%**

Table 2.2 depicts that majority 89 (59.33%) adolescents have moderately addicted to smartphone, 52 (34.7%) were mild addicted and 9 (6%) were severe addiction to smart phone.
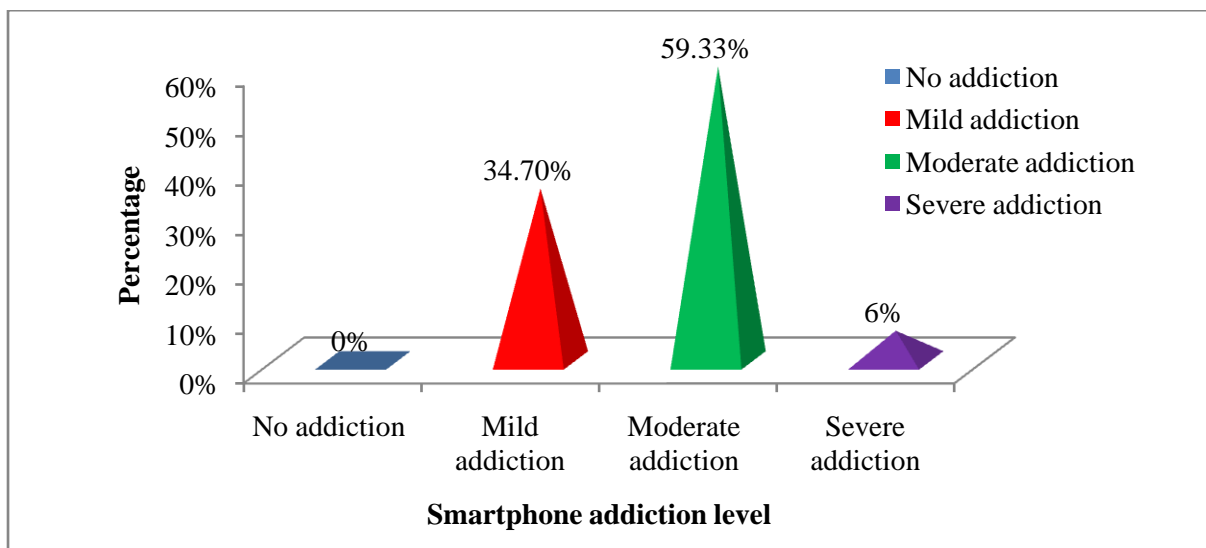
Figure :2 level of Smart phone addiction among adolescents

Table: 3level of depression among adolescents (N=150)

Sl. No	Depression level	Score	F	
			F	%
1.	Minimal depression	0 to 13	16	10.7%
2.	Mild depression	14 to 19	41	27.3%
3.	Moderate depression	20 to 28	76	50.7%
4.	Severe depression	29 to 63	17	11.3%
Total			**150**	**100%**

Table 2.3 reveals that majority 76 (50.7%) adolescents were moderate depression, 41 (27.3%) were mild depression, 17 (11.3%) were severe depression and 16 (10.7%) adolescents were minimal depression.
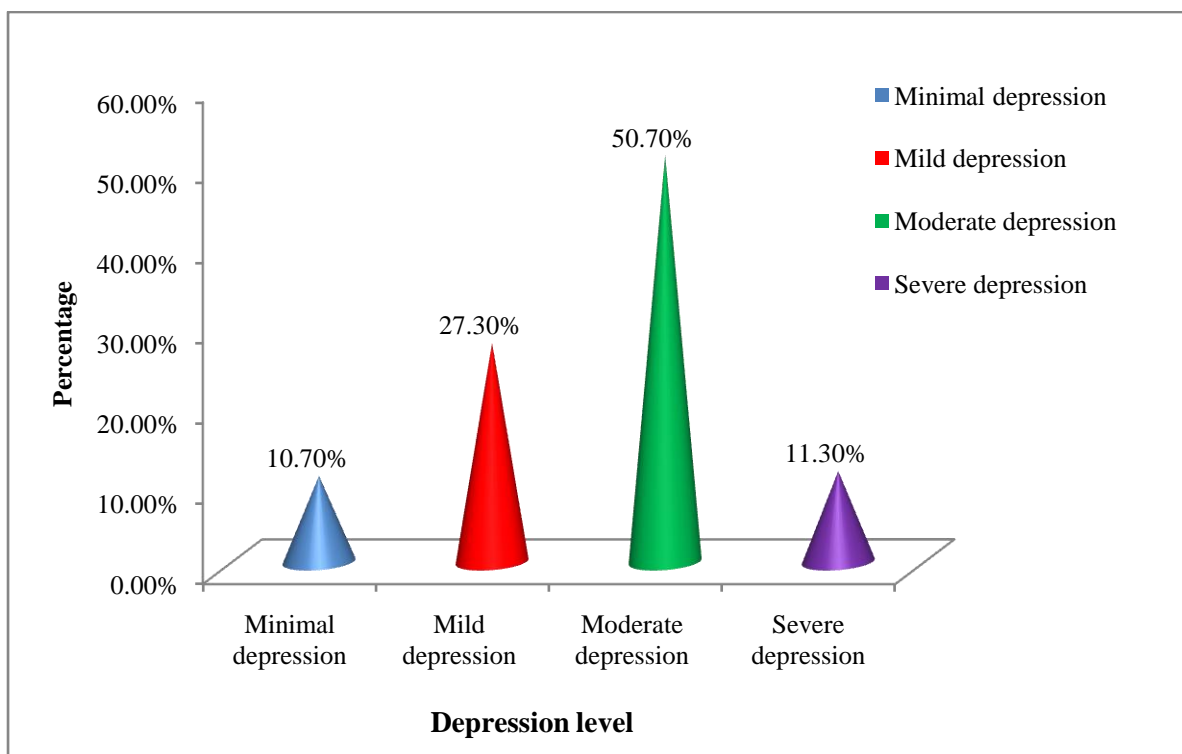

Figure :3 level of Depression among adolescents.

Section 3: Findings related to co-relation between level of smart phone addiction and depression among adolescents.

Table:5 Relationship between level smart phone addiction and depression among adolescents.

Category	Mean %	Co-relation
Smartphone addiction level	55.60%	
Depression level	33.28%	+0.634

Table 5 shows the relationship between smartphone addiction and depression of the adolescent, the obtained score was +0.634 which indicate there is a positive moderate relation between smartphone addiction and depression of adolescents.

Section 4:Deals with association between selected demographic variables with level of smart phone addiction and depression among adolescents.

Age , Gender , income of family per month , Habitat , Do you own a smart phone and most common place to using smart phone obtained p value for these variable is more than 0.05, which indicates that there is no significant association between these demographic variables and smart phone addiction level. Education, purpose of usingsmart phone, Duration (hours) of smart phone use per day obtained p value for these variables is less than 0.05, which indicates that there is a significant association between these demographic variables and smart phone addiction level.

Age, Gender, Education, income of family per month, Habitat , Do you have own smart phone, Duration (hours) of smart phone use per day and most common place to using smart phone. The obtained p value for these variable is more than 0.05, which indicates that there is no significant association. Purpose of using smart phone p value for this variable is less than 0.05, which indicates that there is a significant association.

VI. Discussion

Objective 1: To assess smart phone addiction and depression among adolescents. The data was collected by questioning (Likert scale) in selected schools. The descriptive analysis (frequency %, mean, median, standard deviation) results were obtained. The results depicts that majority 89 (59.33%) adolescents have moderately addicted to smartphone, 52 (34.7%) were mild addicted and 9 (6%) were severe addiction to smart phone. To assess depression among adolescents a standard tool was used. The data was collected by 21 question (multiple- choice self –report inventory) in selected schools. The results depicts that majority 89 (59.33%) adolescents have moderately addicted to smartphone, 52 (34.7%) were mild addicted and 9 (6%) were severe addiction to smart phone.**Objective 2: To find out co-relation between level of smart phone addiction and depression.**The relationship between smartphone addiction and depression of the adolescent, the obtained score was +0.634 which indicate there is a positive moderate relation between smartphone addiction and depression of adolescents.**Objective3: To find out the association between level of smart phone addiction and depression among selected demographic variables of the study.**chi – square value for Age , Gender , income of family per month , Habitat, Do you own a smart phone and most common place to using smart phone, which indicates that there is no significant association between these demographic variables and smart phone addiction.Chi – square value for Education, purpose of using smart phone, Duration (hours) of smart phone use per day, which indicates that there is a significant association between these demographic variables and smart phone addiction**.** chi – square value for Age, Gender , Education , income of family per month , Habitat, Do you own a smart phone, Duration (hours) of smart phone use per day and most common place to using smart phone, which indicates that there is no significant association. Chi – square value for purpose of using smart phone, which indicates that there is a significant association.

VII.   Implication

The present study emphasizes on co-relation between level of smart phone addiction and depression among adolescents.**Nursing practice:**In current digital age, it is important for mental health professionals to explore how an adolescents uses smart phone in daily activities and addiction for smart phone as an important part of a mental health assessment, and open the door for discussion about mental health, mental safety, healthy relationship and digital safety. Counsellors need to see discrepancies or gap as well as consistencies and connection among the adolescents perceived self, real self and ideal self. Health professionals need to see provide screen freeways for tech addicts to spend their time. Gadget free zones need to be created at homes, and public places etc. attempts need to be made at personal and societal levels to reduce the electronic to regain a healthy balance of life, work and technology.**Nursing research:**The importance of research in nursing in to build the body of knowledge, the finding of the present study serve as the basis for the professional and the

students to conduct further studies. Research helps the health care providers to develop a systematic problem solving approach to improve and develop strategies to promote mental health and wellness.

VIII.   Recommendations

- The study can be replicated in various setting with large sample size to facilitate generalization of results. A similar study can be done on various safe use of mobile phone program and their effectiveness can be assessed.
- Study can be done on comparison between professionals and non -professional and its psychopathology among samples.
- In the future studies overcome methods and techniques for the phone addiction can be taught to the adolescents so that the study would become more successful.

IX. Conclusion

Based on the findings of the present study it can be concluded that the most of adolescents were having smart phone addiction with high level of depressive symptoms .From the finding of the study it can be concluded that there is moderate co- relation between smart phone addiction and depression. Results found from the study there is a significant association between smart phone addiction and depression with their demographical variables.

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